

REMARKS

Status of the Claims

In the Office Action mailed November 2, 2004, claims 1-29 were noted as pending in the application. All claims stand rejected.

A. Rejection of Claims under 35 U.S.C. §102(e).

Claim 1 claims “[a] system for enabling layer-3 communication within a sub-network for those members of the sub-network without layer-2 communication . . .”, and “a first network device comprising a media access control address of [a] forwarding agent . . . [that] interprets an address resolution protocol request from [a] sending device, and sends an address resolution protocol reply comprising the media access control address of the forwarding agent to the sending device.” These elements are not found in the cited reference.

B. Summary of Cited References

Before addressing the Examiner’s rejections, a brief summary of the cited references is provided.

Bommareddy

Bommareddy relates to a router clustering system for connecting two or more routers to a one or more distinct Internet Service Providers (“ISP”). Abstract. A router cluster is created by assigning an IP address to the routers that are associated with one another as the cluster. Id. The routers in the cluster are assigned to different ISPs that provide Internet connectivity to a network site, thereby providing fault tolerance and load balancing for the site, thus increasing availability and data rate for the site. Col. 5, lines 34-39.

C. The Claims are not Anticipated by Bommareddy.

Claim 1 claims a system that affects communication between members of a sub-network comprising, among other things, a first network device interconnected between a sending device and a forwarding agent, the first network device comprising a [MAC] address of a forwarding agent, wherein the first network device interprets a request from the sending device and sends a reply to the sending device comprising the MAC address of the forwarding agent to the sending device.

The forwarding agent may include a router 320, as shown in FIG. 3. Page 7, line 1. The first network device, or P2ARP network device 124 as shown on FIG. 1, contains and processes P2ARP function 147, which determines whether a sending device and a receiving device can communication via layer 2 communication (establishing a connection based on MAC addresses of the communicating devices). Page 6, lines 4-9. Router 320 determines whether the communicating devices can communicate using layer-2 based on the IP address of the intended receiving device. Page 6, lines 3-5. Device 322, which corresponds to P2ARP network device 124 in FIG. 1, intercepts a request from a sending device 326. The request may be requesting that router 320

establish a connection with device 328 based on the MAC address of device 328. To prevent spoofing and other techniques that may surreptitiously co-opt control of the receiving device if its MAC address becomes known to other devices on the network, device 322 determines whether knowledge by other network devices of the intended recipient device's MAC address is permitted. If not, the MAC address of the router 320 is forwarded to the sending device and the data packets intended for the recipient device are forwarded to the router based on its MAC address. The router then forwards the data packets to the intended recipient device based on its IP address (layer-3 communication), rather than its MAC address (layer-2 communication). Page 7, lines 1-15.

A system comprising a first network device interconnected between a sending device and an intended recipient device in a sub-network as claimed and described in the specification, is not disclosed in Bommareddy. The passage at col. 3, lines 51-58 cited by Examiner refers to a sending unit requesting the MAC address of the cluster of routers. In the present application, the initial Address Resolution Protocol ("ARP") request is intercepted by the first network device before it reaches all of the other devices that make up the sub-network. Page 3, lines 21-25. Instead of receiving a reply to the ARP request that contains the IP and MAC addresses of the intended destination device, the first network device returns an ARP request reply to the requesting device containing the MAC address of the forwarding agent, or router, for example, and the IP address of the destination device. *Id.* Thus, the sending device (the device that made the initial ARP request) sends its data packets to the MAC address of the forwarding agent, rather than the MAC address of the intended receiving device. Then, the forwarding agent sends the data packets to the intended destination device according to the IP address of the destination device, which is contained in the data packet being sent. Accordingly, the MAC address of the destination device does not pass in a packet from the sending device, and the sending device is unaware that the MAC address it is sending to is the MAC address of the forwarding agent, rather than the destination device.

This differs from the aspects discussed in the cited reference. In Bommareddy, although the servers in FIG. 1 may send information to the router cluster according to a MAC address of traffic distributor 300, and flow controller 110 substitutes this MAC address with the MAC address of the routers 114/115 of cluster 118 before sending the data to the internet according to IP address of the destination address, nothing in the reference discusses a network device that interprets an ARP request from a sending device and sends an ARP request reply comprising the media access control address of a forwarding agent to the sending device for communication among members of a subnet.

As known in the art, subnet devices often safely communicate based on MAC address, because they all have the same subnet mask (thus, communication information does not escape from the subnet 'walled garden'). This allows greater communication speed and reduces subnet complexity. However, there may be reasons that a subnet administrator wants to prevent the availability of individual device MAC addresses to other subnet devices, as discussed in the specification at page 6, lines 1-9. Thus, the advantage provided by the claimed system is beneficial, because sending devices do not have to be separately configured to communicate based on IP address. The first network device claimed in the claim intercepts the ARP request, determines whether the sending device and the destination device are permitted to communicate via layer-2, and returns a reply to the ARP request containing a MAC address of the forwarding agent. Thus,

although the sending device does not receive a MAC address of the destination device like it expects, it nevertheless receives a MAC address, and sends the intended data to the MAC address it receives in the reply. Thus, the MAC address of the forwarding agent, rather than that of the destination device, is available to other devices of the sub-network, and thus the security of the destination device's MAC address is protected.

Since the elements claimed in claim 1 are not taught in the reference, the claim patentably distinguishes over the reference and withdrawal of the rejection is respectfully requested.

Regarding claim 12, as discussed above, the step in the claimed method of "intercepting within a first function and address resolution protocol, . . . and replying from the first function to the sending device an address resolution protocol reply comprising a forwarding agent's [MAC] address," is not disclosed in Bommareddy. Similar analysis applies to the similar element of claim 21. Therefore, claim 12, and similar claim 21, patentably distinguish over the reference and withdrawal of the rejection is respectfully requested.

Dependent claims 2-9 and 11; 14-19 and 23-28 depend from independent claims 1, 12 and 21 respectively. Therefore, since they include all of the elements of the claims from which they depend, and because the independent claims patentably distinguish over the reference, the dependent claims also patentably distinguish over the reference and withdrawal of the rejection is respectfully requested.

SUMMARY

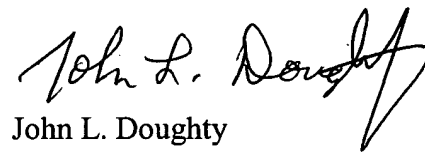
For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any informalities that can be corrected by an Examiner's amendment please contact the undersigned at the mailing address, telephone, facsimile number, or e-mail address indicated below.

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